International Journal of School and Cognitive Psychology

Lisa, Int J Sch Cog Psychol 2015, 2:1
http://dx.doi.org/10.4172/1234-3425.1000120

Research Article Open Access

Joint Attention in Preschool Children: Is it a Meaningful Measure?

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Rec date: Nov 19, 2014, **Acc date:** Mar 31, 2015, **Pub date:** Apr 02, 2015

Abstract

The goal of this study was to evaluate the degree to which measuring joint attention an aspect of social attention, is meaningful for the learning and development of preschool children. Joint attention refers to the executive capacity to coordinate visual attention with another person. This pivotal skill begins to develop from 6 to 18 months of age and continues to be refined and coordinated throughout individual developmental trajectories. In this study joint attention was measured in forty-three 4 to 5-year-olds asked to coordinate their attention with that of an unfamiliar adult during a social attention word learning task. The results revealed that there were individual differences in joint attention for children in this age group which suggests that this may be a meaningful construct to measure. These data contribute to a small but growing literature on the potential utility of joint attention theory and measurement in preschool aged children to further our understanding of social attention coordination in classroom contexts.

Keywords: Preschool; Joint attention; Word learning; Language; Early learning

Introduction

Joint attention (JA) refers to the ability of a child or adult to coordinate their visual attention with that of a social partner [1-3]. The majority of research on the developmental trajectory of JA has been conducted in a plethora of infant studies [4-7]. However, JA is an essential form of social attention that continues to play a key role in cognitive activities in both children and adults [8-12].

Empirical studies suggest that infant joint attention is pivotal for learning, language development, and social-cognitive development in the first years of life [12-15] and is a significant predictor of social competence and cognitive outcomes in typically developing children [13,16] as well as those with neurodevelopmental disorders. Further, recent work also suggests that measures of joint attention (JA) may provide a unique source of information on individual differences in school performance among preschool children [12] The means by which joint attention may be associated with cognitive as well as social outcomes of preschool children may be best described by theory on joint attention as a facilitator of social learning.

Individual differences in JA may be related to social motivation, or a desire to share experiences and attention [16-19] as well as positive affect [1,16,20] with others. That is, the individual differences in JA related to social motivation appear to impact the ability to interact positively with peers and adults [21] and to the later development of social competence [22-25].

Secondly, the use of JA by infants is a marker of the emergence of social cognition, or the recognition that others have intentions and perceptions that are conveyed using eye contact, gestures, and facial expressions [7,15,26,27]. The development of social cognition is directly related to behavioral and cognitive outcomes for preschool and school aged children [28,29]. This suggests that the expression of JA provides an important link between social cognitive development and later behavior that is related to learning [30,31].

Thirdly, is the idea that JA is related to executive functions involved in attention regulation and self-monitoring that are important to cognitive and social development [21,22,31]. For example, individual differences in JA have been shown to be related to intentional or goal directed actions, inhibitory control, and self-monitoring [31] and attention regulation [30-34]. These types of executive skills involved in self-regulation are considered to be an important component in the development of pro-social behavior for children [35] Finally, studies indicate that differences in the frequency and quality of JA behaviors in infants and toddlers predict their subsequent rate of learning about others emotions and perceptions [36,37]. That is, emotion recognition is both critical and integral to the process of understanding how to interact successfully with others. All three areas of development described above are closely linked to language development in children.

The notion of individual differences in JA stems, in part, from research conducted on autism. As has been recently documented in many empirical studies in the last decade, autism is a neurodevelopmental disorder which is characterized by an extreme attenuation of the typical maturation of JA skills in the preschool period [38-40]. This long-standing evidence supports the notion that JA is a pivotal skill and major milestone of social-cognitive development that is affected by attentional processes inherent to the child [39-41]. These social attention processes along with social attention coordination are vital to successful interactions and social competence in both infants and young children. For example, a preschool child who is limited in the capacity to adopt a common frame of reference with a teacher or peers may be impaired in their capacity in a wide range of skills, including language learning [42,43].

The link between joint attention and language learning is especially relevant in terms of word learning. Early language acquisition includes a component of object naming and recognition. The notion of word learning in relation to joint attention is especially relevant given that the current study will use a word learning paradigm to examine comprehension in relation to frequency of joint attention bids. This construct has been used extensively in previous research and provides

a well defined approach to examining word learning. For example, a series of studies of novel object recognition found that joint attention skills become increasingly utilized by infants from 5 months to 9 months [44-46]. After 9 months in development, joint attention is employed with a variety of other inputs, such as vocal cues and gestures [14]. In a related finding, investigations of object recognition have shown that infants show a preference for looking at objects which were viewed with a social referencing component suggesting that social cues influence future attention as well as recognition.

Although theory suggests that individual differences in JA may be expected to affect behavior across the life span [13,21] nearly all of the previous research has been conducted only with children up through 36 months of age. In this previous work, JA has primarily been measured in the context of autism as a key component of many autism screening tools. In relation to typically developing children JA has most commonly been measured using a direct observation of JA bids during either structured or unstructured play tasks as a method to assess the development of language and social skills.

The current study was designed to provide one of the first tests of the validity of JA measurement in typically developing older four- to five-year old children attending community preschools. Moreover, to enhance its ecological validity, child JA was measured during a learning task that involved attention coordination during a language learning task. In this study we examined the hypothesis that JA can be successfully measured in preschool children and that individual differences in JA will be expressed for this age group. A secondary hypothesis was that individual differences in JA will be meaningfully related to word learning and language ability as has been found for the expression of JA in younger children [38,39,44-46]. In addition, the design of the sample allowed mediators and moderators of this association to be analyzed, including key demographic factors such as maternal education, ethnicity and gender.

Method

Participants

Forty-three 4 and 5-year-old preschool children participated in this study. Demographic information for all of the participants is provided in (Table 1). A preschool in a lower socio-economic urban catchment area and a preschool in a nearby higher socio-economic suburban area near Sacramento, California participated in this study. Parents and caregivers provided written consent for all participating children. For the purposes of this study the urban school will be called School Site 1 and the suburban school will be called School Site 2. SES estimates were based on the total number of children eligible for federally subsidized aid to attend preschool at each school (eligibility criteria: annual income below $28,665) as well as maternal education ratings at the two school sites. Over 50% of the students at School Site 1 received federally subsidized aid to attend preschool. In comparison, 10% of the students at School Site 2 received child care subsidies during the year the study was conducted. At School Site 1 less than 50% of the mother's reported having attending or graduated from college. By comparison, at School Site2, 99% of the mothers reported having graduated from college or graduate school. Twenty-one of the student participants were from School Site 1 and twenty-two were from School Site 2. Participant exclusion criteria included presence of significant, health, sensory, or developmental problems, and standardized language scores below 75. Both schools receive curriculum support and consultation from the local University of California campus. The curriculum at both preschools was similar and followed California State Kindergarten standards.

School site		**School site**		**Total sample**		
Gender	**Frequency**	**%**	**Frequency**	**%**	**Frequency**	**%**
Boy	9	42.9	13	59.1	22	51
Girl	12	57.1	9	40.9	21	49
Chronological age (months)						
53 or less	4	19.0	5	22.7	9	20.9
54-57	10	47.7	6	47.3	16	37.2
58-61	7	33.3	6	27.3	13	30.3
62-64	0	0.0	5	22.7	5	11.6
Ethnicity						
White	5	23.8	17	73.9	22	51.2
African American	9	42.9	1	4.3	10	23.3
Hispanic	4	19.0	1	4.3	5	11.6
Asian	0	0.0	3	17.4	3	7.0
Other	3	14.3	0	0.0	3	7.0
Maternal education						

Some high school	2	9.5	0	0.0	2	4.7
High school graduate	9	42.9	0	0.0	9	20.9
College graduate	6	28.6	11	47.8	16	37.2
Graduate school	4	19.0	12	52.2	16	37.2
(N=43, Site #1=21, Site #2=22)						

Table 1: Descriptive statistics for demographic variables.

The samples of children at the two school sites were very similar in terms of chronological age and gender ratios. However, the families of children enrolled in School Sites 1 and 2 tended to differ with respect to maternal education with more mothers of children in School site 2 reporting histories of college and graduate school educations, Chi-square=3.73, $p<0.07$.

The two schools differed significantly in terms of ethnicity when the variable was dichotomized on the basis of white vs. all other ethnicities, (Chi-Square=11.02, $p<0.001$). School Site 2 had greater numbers of children from parents endorsing white ethnicity compared to School Site 1 (Table 1).

Materials

Sixteen novel objects were used as stimuli in the learning task and given novel labels (e.g. "modi," "seeru"). Guided by previous empirical methods and paradigms [6], objects were chosen that did not have a common or familiar name, but were visually and tactilely appealing. The novel objects were combined with sixteen more familiar objects in the learning task. The familiar objects were of similar size and type as the novel objects, such as a magnet, a flashlight, a large spoon, a hairbrush, a tape measure, a pair of glasses, a small box, and a toothbrush Measures.

Measures

The following measures provided a multiple informant data set on students' frequency of joint attention, and language ability.

Measure of joint attention

JA was measured during a learning task which consisted of teaching children novel words for novel objects. The learning task was videotaped and viewed by three independent coders to estimate inter-rater reliability. JA was rated in terms of how frequently the child alternated their gaze between the objects and the tester's face during word learning trials. Previous studies indicate that this type of alternating gaze measure may be reliably 7 observed in children from 9 months of age through 4 years and that this type of JA behavior is related to language development [13,47]. Inter-rater reliability indicated that the three raters were consistent in their quantitative JA ratings from the learning trials for 15 participants randomly selected from the sample; (intra-class correlation=0.94, $p<0.01$). To reduce the number of individual variables (8 joint attention trials) and increase the reliability of repeated measures of the pattern of JA across word learning trials the average JA in trials 1-4 and 5-8 was computed which yielded two JA data points for each child.

Measure of language ability

The Clinical Evaluation of Language Fundamentals (CELF-P:2) Level One – Preschool Version [48] was administered to each participating child. The CELF-P:2 level one yields a language standard score and several subtest scores. In addition to the standard score, data from the expressive vocabulary subtest was also used in this study because previous research and theory leads to predictions specifically about the relation between joint attention and word learning. The CELF-P:2 has normative data based on a sample of 800 preschool children. It has documented reliability and validity in the assessment of 4 and 5-year-olds from varied SES and developmental backgrounds. A trained research assistant administered the language measure to the preschool children individually, either immediately following or preceding the word-learning task.

Procedures

Children were assessed during one 45-minute session in a quiet testing room at each school site. During that time, a trained researcher presented children with the learning task and a standardized language measure (CELF-P:2) both described above.

Following a brief warm-up activity students were introduced to the learning task during a practice trial. Participants were told that they would be playing a 'matching game' and that they would be shown some objects that they were familiar with and others that they had never seen 8 before. They were told that the experimenter would be teaching them the name for the things they did not know. The experimenter also explained that after teaching children the names of the new objects she would ask the child to match the new name to the correct objects. The experimenter then presented a practice trial and asked if the children had any questions about what they were going to be doing.

During the learning trials the tester sat across from the child at a 54 × 28 inch preschool work table. A digital video camera was positioned 48 inches behind, and 30 degrees to the left of the tester. The video image captured a three quarter view of each child's face and upper torso, all objects presented to the child, and a profile view of the tester. This enabled subsequent quantitative JA coding of children's visual fixation of objects and the tester's face during learning trials. All children were presented with eight learning trials in two blocks of four trials. In each trial children were presented with four objects prepositioned in a row on a 36 × 24 inch tray. Two of the objects were novel and two were familiar on each trial. The novel objects were balanced across the sessions so that half of the sample was exposed to one randomly assigned set of novel and familiar objects in the first session and the other set of novel and familiar objects in the second session.

During each learning trial the familiar and novel objects were labeled in random serial position sequence three times by the experimenter using the phrases, such as "This is a modi," "This is the seeru," in conjunction with alternating gaze between the object and the child. The tester did not point to or indicate the labeled objects other than through gaze shifts. Immediately following the first four trials the experimenter began the recognition trials. The recognition trials involved presenting the 4 trays of four objects to the students in the same order again. With each tray presentation the tester requested one target novel object. For example, on one trial the experimenter might ask, "Can you hand me the seeru?", and on the next trial "Can I have the 9 modi?" After the first set of word recognition trials was administered the child was permitted a two-minute break. Then the tester presented learning trials 5-8 and recognition trials 5-8. So, there was a potential for 8 correct responses on the learning trials.

Results

Joint attention

Correlation analyses were conducted to examine the internal consistency of responses across the joint attention trials. The correlation matrix for these variables appears in Table 2. These analyses indicated there was significant consistency in individual children's joint attention performance across word learning study trials. Joint attention trials were conducted in blocks of four trials separated by word recognition test trials. These two sets of joint attention trials were significantly correlated with the each of the individual trials (Table 2).

Trials	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Trial 1	-							
Trial 2	.45**	-						
Trial 3	.40**	.71**	-					
Trial 4	.60**	.57*	.38*	-				
Trial 5	.38*	.66*	.57**	.50**	-			
Trial 6	0.21	.48**	.63**	.46**	.52**	-		
Trial 7	.53**	.60*	.41**	.51**	.68**	.37*	-	
Trial 8	.47**	.64**	.58**	.50**	.57**	.58**	.66**	-
Trials 1 to 4	.78*	.85*	.77*	.78*	.65*	.53*	.64*	.68*
Trials 5 to 8	.49*	.72*	.65*	.60*	.84*	.73*	.85*	.77*

Table 2: Intercorrelations among joint attention trials.

The joint attention variable was also converted into a grouping variable for the two sets of trials. The groups were created using a median split based on the distribution of joint attention scores for students from both schools. This resulted in student placement into either a Higher or Lower joint attention group based on Trial 1 to 4 data and Trial 5 to 8 data (Table 3). This allowed joint attention to be analyzed as a grouping variable as opposed to a continuous variable. Given the relatively low frequency of joint attention across all eight trials, this joint attention grouping variable proved to be a more meaningful and valid measure of joint attention (e.g. revealed more significant effects) than did analyses using the continuous joint attention frequency data.

	Joint attention trials 1 to 4		Joint attention trials 5 to 8	
Joint attention groups	Low	High	Low	High
School site one	8	13	10	11
School site two	16	7	11	12

Table 3: Distribution of students in joint attention groups.

Joint attention and word learning: Means and standard deviations for the variables of interest (JA, Word Learning and CELF) are displayed in Table 4. There were significant differences in the joint attention levels between children at the two schools sites. In addition, there was a significant difference between scores on the CELF vocabulary measure at the two sites which will be discussed below. A series of analyses was conducted to determine the relationship between joint attention and word learning scores.

School site #1		School site #2	Total sample N=43	
	Mean (SD)	Mean (SD)	Mean (SD)	p
JA Trials 1-4	2.9 (1.4)	2.1 (1.2)	2.5 (1.3)	.06*
JA Trials 5-8	2.9 (1.3)	2.5 (1.2)	2.7 (1.2)	.03*
Word learning	4.52(1.9)	4.77(1.8)	4.65(1.8)	NS
Language	99.7(11.6)	108.5(12.4)	104.2 (12.6)	.02*
Standard (CELF)				
CELF vocabulary	10.1 (2.4)	13.2 (5.8)	11.7 (4.7)	.02*
NS: Not Significant				

Table 4: Means and standard deviations for primary variables (maternal education covariate).

Analyses were conducted using the two sets of trials for low and high joint attention groups to examine whether joint attention in either Trial blocks 1 to 4 or 5 to 8 was associated with word learning among children in School Sites 1 and 2. This involved a 2 (school sites) × 2 (High/Low Joint Attention Trials 1-4) × 2 (High/Low Joint Attention Trials 5-8) × 2 (Age Groups) MANOVA with Word Learning in Trials 1 to 4 and 5 to 8 as the dependent variables. Age was included in all analyses because of potential developmental effects in this sample. The results from this analysis indicated that there was a significant main effect of Joint Attention on Word Learning accuracy. The effect was observed between Joint Attention for Trials 1 to 4 and Word Learning in Trials 5 to 8, $F(1,42)=4.754$, $p<0.037$, partial eta2=0.133 (Table 5). Children who displayed more alternating looking between objects and testers in trials 1-4 of the word learning task did better on the later trials of the word learning task.

There was no significant effect for Joint Attention Groups in Trials 1 to 4 on Word Learning in Trials 1 to 4, $F(1,42)=0.027$, $p<0.871$,

partial eta2=0.001. There were no significant effects observed for age group on word learning trials 1 to 4, F (1,42)=1.680, p<0.204, partial eta2=0.051 or word learning trials 5 to 8, F (1,42)=1.731, p<0.198 partial eta2=0.053 [11]. There were also no significant effect for school site one word learning trials 1 to 4, F (1, 42)=0.015, p<0.903, partial eta2=0.001, or word learning trials 5 to 8, F (1, 42)=0.246, p<0.623, partial eta2=0.008 (Table 5).

There was also no effect observed between Joint Attention Groups in Trials 5 to 8 and Word Learning in Trials 5 to 8, F (1, 42)=1.557, p<0.221, partial eta2=0.048 or Joint Attention in Trials 5 to 8 on word learning trials 1 to 4. The results of these analyses showed that joint attention in the first set of trials was associated with word learning in the second set of trials for children in both schools and especially for those in School Site Two (Table 5).

Language and joint attention: There were differences between the two schools in children's language abilities as measured by CELF standard scores: School 1=99.7 (SD=11.6), School 2=108.5 (12.4), F (1, 41)=5.75, p>0.02 (Table 4). However, when maternal education was added as a covariate this affect associated with school was not apparent, F=2.88, p<0.34. Correlation analyses revealed no associations between the JA variable and the CELF standard score when analyses were conducted on the data combined across schools (Table 4). Analyses conducted separately for schools also revealed no significant association of joint attention with language variables in School 1. Alternatively, the association between the JA Trials 1-4 variable and the standardized vocabulary measure of the CELF was significant in the School 2, r (19)=0.48, p<0.02.

			Joint attention		**Joint attention**	
			Trials 1 to 4		Trials 5 to 8	
			Low	High	Low	High
Word Learning 1 to 4		#1	2.12	2.76	2.3	2.52
	Total		2.5	2.7	2.61	2.56
		#2	2.68	2.57	2.9	2.41
Word Learning 5 to 8		#1	1.87	2.07 b*	2.4	1.63 b*
	Total		1.91	2.20 a*	2.14	1.95
		#2	1.94	2.43	1.9	2.25
*p <0.05, p**<0.01						
a: F (1, 42)=4.754, p <0.037 (JA Groups 1 to 4 to WL Trials 5 to 8)						
b: F (1, 20)=5.861, p <0.029 (JA Groups 1 to 4 to WL Trials 5 to 8)						
c: F (1, 20)= 5.753, p <0.030 (JA Groups 5 to 8 to WL Trials 5 to 8)						
#1=School Site One , #2=School Site Two						
Comparison of joint attention effects on word learning by set of trials (N=43)						

Table 5: Comparison of joint attention effects on word learning by trials (n=43).

Variable	**1**	**2**	**3**	**4**
1. Maternal Education	-			
2. Ethnicity	0.08	-		
3. Joint Attention	-0.01	0.23	-	
4. Language Standard	.36*	-0.09	-0.08	-
(N=43), Pearson correlations. *p<0.05, **p<0.01				

Table 6: Intercorrelations among maternal education, joint attention, and language.

Discussion

The premise of this study is that measurement of joint attention may be an ecologically valid measure in preschool children that is related to broader learning, and more specifically to 12.

Language learning. In this study, joint attention was operationally defined in terms of the ability of preschool children to coordinate their attention with an adult during a novel word learning task. The results of this study suggest that a better understanding of the development of individual differences in joint attention in early childhood may make a

meaningful contribution to research on the factors that facilitate and impede early learning. However, the results also suggested that individual differences in joint attention are complex and may vary across populations of preschool children.

The results show that there are reliable individual differences in JA skills during the preschool period. For some children the frequency of JA was less than one look to the experimenter per learning trial, for other children the frequency of JA was four or five looks per trial. The JA frequency scores of the preschool children in both schools were significantly correlated across novel word learning trials. This evidence of the reliability of joint attention measurement in four-year old children is consistent with two previous studies of 3 to 5 year olds [8,49,50] and several studies of children younger than three years old [36,51].

Complexities in the obtained results began to become apparent in the context of school comparisons. First, the pattern of children's deployment of joint attention across learning trials in School 1 and School 2 were significantly different. Children in School 1 started with a relatively high average of joint attention bids on the first set of word learning trials, and maintained this relative high rate of joint attention deployment across all learning trials. A post-hoc interpretation of these patterns in joint attention is that they suggest that more children in School 2 may have adopted a modulated, task specific use of joint attention in the word learning task than did children 13.

In School 1, Children in School 2 may have identified that there was no need for more than 1 coordinated shared look to the novel objects for each trial. Evidence of a relationship between joint attention in the experimental word learning task and CELF language measures were not observed in School 1. This does not indicate that the children in School 2 displayed better word learning than children in School 1; however it does suggest that Children in School 2 may have determined the optimal level of joint attention required for the word learning task. There was no school difference between the schools on the words learned in the experimental task, and no school difference observed on the CELF language scales after controlling for maternal education. Rather the data suggest the possibility that children in the two schools displayed differences in the use of joint attention during a language learning task, but not necessarily differences on language learning. The differences in how joint attention was employed by children at these two schools may be more related to individual differences in social behavior which have been exhibited in studies with younger children [7,22]. Unfortunately a social behavior measure was not part of the current study so it is impossible to determine if this is indeed the case.

To better interpret and understand the differences in joint attention across schools, it may be useful to reexamine the task demands of the JA measure used in this study. During the word learning task it was important to attend to the gaze direction of the experimenter when an object label was provided, especially on trials when novel labels were provided. Only two novel words were presented in each trial so an optimal pattern of joint attention would have been about 2 looks to the experimenter per trial. Any additional looking behavior may have involved excessive social attention that conflicted with the task demands. Alternatively, less looking behavior may result in too little social attention relative to task demands. In School 2 the pattern of correlations appeared 14.

Accurately measuring and documenting the optimal use of joint attention in young children may inform our understanding of some learning differences that exist for preschool children. Research with young children has shown that join attention is a reliable predictor of both social behavior and language learning [10,45]. It follows that being able to effectively coordinate join attention in a preschool setting may have an impact on these same factors. The current study found that joint attention can be reliably measured in preschool children; however, the learning task utilized for this study may have been too simplistic 15 to accurately gauge how preschool children are employing joint attention in classroom learning contexts.

To reflect the benefits of moderate looking as well as the cost of too little looking. Hence, one of the complicating factors in the study of joint attention in a learning paradigm is the prospect of a non-linear or "U" shaped function. Such "U" shaped effects have long been observed in the study of attention and cognition and are often thought to reflect the effects of differences in arousal (inhibition and excitation) on task performance [50,51].

If joint attention in learning tasks in preschool children follows a U shaped function, optimal behavior would likely occur at a hypothetical midpoint in the distribution of individual differences. Hypothetically, this optimal mid-point would reflect at least two processes. One is the achievement of the use of goal related joint attention (looking between teacher and objects to clarify the point of common reference) to best understand task demands [1]. The second process would involve the simultaneous regulation of positive or negative emotional reactivity to the task or situation that may lead to too great or too little use of social attention in a task, such as to few looks to teachers and only looking at objects, or too many looks to teachers at the risk of missing critical referential gaze information [4,3]. Future research studies should consider and plan for the analysis of the complexities associated with the possibility of this type of U shaped function.

Limitations: It is important to recognize that this study had several limitations. Primary among these is the modest sample size. This increased the likelihood of type II error, or the possibility that important effects were not observed. This may have been part of the reason for effects limited to JA Trials 1-2 in School 2. Another issue was the reliance on one measure of joint attention in this study administered at one time period. Infancy research suggests that multiple measures of joint attention yield more complete information about individual differences in joint attention in young children. Future studies should consider the increased validity that may be associated with multiple types of joint attention measurement in preschool children. In addition, multiple measures across days or weeks would provide the advantage of enabling test-retest reliability and reduce state related error of measurement in children. A longitudinal analysis of growth may also provide unique and powerful information about JA in samples of young children.

Implications and Future Directions

The forgoing limitations notwithstanding, the results of this study were consistent with the hypothesis that JA assessment may provide a window into understanding individual differences that are potentially related to socio-behavioral development and language ability (Acra et al, 2003; Adamson & Bakeman, 1985). Future research to better identify these processes and evaluate their malleability may be instrumental in advancing educational research on factors that are important to language learning and social behavior. While interventions for JA have been developed and implemented for

children with developmental disorders such as autism [49,52,53], little has been done for children with 'at risk' social attention behaviors.

Given the growing need in the field of education to identify factors that impact learning for young children, it seems valid to consider joint attention as a potentially important mediating factor in providing optimal attentional learning environments for preschool children. Certainly, the ability to efficiently attend to both social cues and content being presented is a skill that successful learners exhibit [15,33]. Examining the potential role joint attention plays in the complex process of preschool learning is a logical extension of research with young children showing that individual differences in joint attention relate to both future language ability and social behavior [10,38,48,54-56].

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